

CLAIMS:

1. A method of treating the human body, the method comprising:
producing electromagnetic radiation;
passing the electromagnetic radiation through a graded index optical fiber, the graded index optical fiber modifying the electromagnetic radiation and the graded index optical fiber outputting the modified electromagnetic radiation; and
applying the modified laser beam to the human body.
2. The method of claim 1 wherein said electromagnetic radiation is a laser beam.
3. The method of claim 2 wherein the laser beam has a wavelength of approximately 2.1 μ m.
4. The method of claim 2 wherein the laser beam has a wavelength of approximately 1.06 μ m.
5. The method of claim 1 comprising producing a laser beam by a CTH:YAG laser generator.
6. The method of claim 1 comprising producing a laser beam by a Ho:Yag laser generator.
7. The method of claim 1 wherein the modified electromagnetic radiation is applied directly to the human body.

8. The method of claim 7 comprising ablating the human tissue.
9. The method of claim 7 comprising cutting the human tissue.
10. The method of claim 1 comprising passing the electromagnetic radiation through a light guide.
11. The method of claim 1 comprising passing the electromagnetic radiation through a second optical fiber.
12. The method of claim 1 comprising passing the electromagnetic radiation through a lens.
13. The method of claim 1 wherein the modified electromagnetic radiation has a substantially Gaussian intensity distribution.
14. The method of claim 1 wherein the modified electromagnetic radiation has a substantially bell curve shaped intensity distribution.
15. The method of claim 1 comprising modifying the electromagnetic radiation in the graded index optical fiber such that the modified electromagnetic radiation has an intensity profile which is more rounded than that of the laser beam input to the fiber.
16. The method of claim 1 wherein the optical fiber has a core diameter of approximately between 150 and 1000 micrometers.
17. A method of treating the human body, the method comprising:

producing an original laser beam;

passing the laser beam through an optical fiber, the optical fiber outputting a modified laser beam, the modified laser beam having an intensity distribution which is more towards a Gaussian intensity distribution than the original laser beam; and

applying the modified laser beam to the human body.

18. The method of claim 17 wherein the laser beam includes a wavelength of approximately 2.1 μm .

19. The method of claim 17 wherein the laser beam includes a wavelength of approximately 1.06 μm .

20. The method of claim 17 wherein the modified laser beam is applied directly to the human body.

21. The method of claim 17 comprising ablating the human tissue.

22. The method of claim 17 comprising passing the laser beam through a lens.

23. The method of claim 17 wherein the modified laser beam has a substantially bell curve shaped intensity distribution.

24. The method of claim 17 comprising modifying the laser beam in a graded index optical fiber.

25. The method of claim 17 wherein the optical fiber has a core diameter of approximately between 150 and 1000 micrometers.

26. A method of treating the human body, the method comprising:

producing electromagnetic radiation;

passing electromagnetic radiation the through an optical fiber, the optical fiber having a continuously variable refractive index when measured from the center of the optical fiber to the edge of the optical fiber, the optical modifying the electromagnetic radiation, and the optical fiber outputting the modified electromagnetic radiation; and

applying the modified electromagnetic radiation to the human body.

27. The method of claim 26 wherein the electromagnetic radiation is a laser beam;

28. The method of claim 26 wherein the electromagnetic radiation has a wavelength of approximately 2.1 μm .

29. The method of claim 26 wherein the electromagnetic radiation has a wavelength of approximately 1.06 μm .

30. The method of claim 26 comprising ablating the human tissue.

31. The method of claim 26 wherein the modified electromagnetic radiation has a substantially bell curve shaped intensity distribution.

32. The method of claim 26 wherein the modified electromagnetic radiation has a substantially Gaussian intensity distribution.

33. The method of claim 26 comprising modifying the electromagnetic radiation such that the modified electromagnetic radiation has an intensity profile which is more rounded than that of the electromagnetic radiation input to the fiber.

34. The method of claim 26 wherein the optical fiber has a core diameter of approximately between 150 and 1000 micrometers.

35. A device for producing laser treatment for medical application on the human body, the device comprising:

an illumination source; and

a graded index optical fiber.

36. The device of claim 35 wherein said illumination source is a laser generatr.

37. The device of claim 35 comprising a lens.

38. The device of claim 35 comprising a second optical fiber.

39. The device of claim 35 wherein the illumination source is a CTH:YAG laser.

40. The device of claim 35 wherein the illumination source is a Ho:Yag laser.

41. The device of claim 35 wherein the illumination source produces at least a wavelength of approximately $2.1\mu\text{m}$.
42. The device of claim 35 wherein the illumination source produces at least a wavelength of approximately $1.06\ \mu\text{m}$.
43. The device of claim 35 comprising a second optical fiber.
44. The device of claim 35 wherein the electromagnetic radiation output from the graded index optical fiber has a substantially Gaussian intensity distribution.
45. The device of claim 35 wherein the electromagnetic radiation output from the graded index optical fiber has a substantially bell curve shaped intensity distribution.
46. The device of claim 35 wherein the electromagnetic radiation output from the graded index optical fiber has an intensity profile which is more rounded than that of the electromagnetic radiation input to the graded index optical fiber.
47. The device of claim 35 wherein the optical fiber has a core diameter of approximately between 150 and 1000 micrometers.